ippines comes directly under the local Secretary of the Interior, through whom it reports to the Governor of the Philippines and the Bureau of Insular Affairs at Washington. Since the reorganization, 1901, the number of reporting stations has been as follows: 1 central observatory; 9 first-class stations; 25 second-class; 17 third-class; 21 special rainfall stations. Three meteorological expeditions have been made for the installation of new stations and the inspection of old ones. The study of earthquakes and magnetics continues to be provided for in connection with meteorology. The first and second class stations make monthly reports. The cooperation of the Chief of the United States Weather Bureau is most heartily acknowledged. The report closes with a complete bibliography of the publications of the Philippine Weather Service and its predecessor, the Manilla Observatory.

LONG-RANGE FORECASTING.

In the official forecasts dated at 8 p. m. on Monday, November 2, Prof. E. B. Garriott says:

Observation has shown that periods of low barometric pressure over the British Isles are attended by stagnated weather conditions over the western Atlantic and the eastern part of the American Continent, and that five or six days after reestablishment of normal barometric pressures over the eastern Atlantic the usual progression of areas of high and low barometer over the United States is resumed. An instance of this kind has been presented during the past week. On Friday last an area of low barometer that had occupied the British Isles for several days began an eastward movement, and to-day the high barometer area that has persistently occupied the east-central part of the United States since last Tuesday shows signs of dissolution. The effect of these barometric changes will probably be shown in a gradual breaking up of the quiescent weather conditions that have prevailed since the 27th ultimo over the eastern part of the United States. There are at present, however, no indications of the development of a well-marked storm in the United States.

This interesting generalization and forecast is commented upon by Mr. James P. Hall editorially in the New York Tribune of November 5, as follows:

The most noteworthy thing about this statement is that it betrays a disposition to extend the range of Government forecasts beyond a period of twenty-four or thirty-six hours. It shows that some of the true principles of long-range work have been discovered and excites hope that in time it may be practicable to issue frequent intimations of the same character that will be thoroughly trustworthy. Should further experience verify the soundness of the particular statement here referred to, it will freshly illustrate the necessity of looking to the east, as well as to the west, in formulating opinions about coming weather.

In fact, experts will probably not get at the bottom of the whole matter until they discover the relations existing between conditions prevailing in America and continents as far distant as Asia and Australia. Whether the influences which disturb the atmosphere be simply thermal or include magnetic and other solar radiations, the effects should be widespread, if not universal. If the meteorologist can once discover only a part of any regular sequence of events, it may help him to find other members of the system.

THE WEATHER OF THE MONTH.

By Mr. W. B. STOCKMAN, District Forecaster, in charge of Division of Meteorological Records.

PRESSURE.

The distribution of mean atmospheric pressure is graphically shown on Chart IV and the average values and departures from normal are shown in Tables I and VI.

Two well-defined areas of high mean barometric pressure are shown by the isobars for the month. The principal one overlay the northern Plateau and northern part of the middle Plateau regions, with the crest, showing mean of 30.15 to 30.17 inches, over west-central Wyoming, southern Idaho, and eastern Oregon. The secondary area of high pressure overlay the northern portion of the east Gulf States, the Ohio Valley and Tennessee, northwestern Ohio, Indiana, Illinois generally, south-central Iowa, Missouri, Arkansas, and northern Louisiana, with the crest, bearing a mean of 30.15 inches of pressure, over central Tennessee.

The mean pressure was low over the southern Plateau regions and the valleys of California, with a minimum mean of 29.91 inches at Yuma.

The mean pressure diminished from that of the preceding month in the Atlantic States north of Georgia, and in the upper Ohio Valley, lower Lake region, and eastern portion of the upper Lake region; elsewhere there was an increase over September. The greatest decreases occurred on the middle Atlantic and southern New England coasts, and the greatest increases over the middle Plateau and southern portion of the northern Plateau regions. The maximum increases were .05 inch higher than the maximum decreases, and the area of increase was much greater than that of decrease.

The mean barometer was slightly below the normal in New England, the Middle Atlantic States, northern part of the South Atlantic States, eastern part of the lower Lake region, and in north-central California; elsewhere it was above the normal, and generally with departures greater than in the area over which the mean pressure was below the normal.

TEMPERATURE OF THE AIR.

The mean temperature was below the normal in the South Atlantic States, Florida Peninsula, west Gulf, and southern slope regions; normal in the east Gulf States and above normal in the remaining geographic districts.

Departures ranging from —1.1° to —1.3° per day were reported from the western portion of the Florida Peninsula, and from —1.3° to —1.8° per day over east-central and northeastern Texas; over the remainder of the area of minus departure the changes were slight.

As a rule the plus departures were marked, being an average of +1.0°, or more, per day generally over the northern two-thirds of the country; +2.0°, or more, per day over the northern half of the country, except the State of Washington; +4.0°, or more, per day in north-central upper Michigan, western Minnesota, the Dakotas, except southwestern South Dakota, central Nebraska, Montana, southwestern Idaho, and northeastern California, and +5.0°, or more, per day in central Montana.

The isotherm of 70° of mean temperature trends westward as far as longitude 100°, just to the southward of latitude 30°; it also incloses an area of slight extent over the southern Plateau region. The isotherm of 60° lay generally slightly to the northward of the thirty-fifth parallel as far west as longitude 105°, then southwestward to longitude 110°, and thence northwestward to northwestern California, and the isotherm of 50° generally slightly to the southward of latitude 45° westward to longitude 105°, then trends southward to central Arizona and thence northward over central Washington. An area of less than 50° of mean temperature overlay portions of the middle Plateau region.

Maximum temperatures of 90°, or higher, occurred in the central portion of the Florida Peninsula, in the east Gulf States except along the coast, the western parts of Tennessee and Kentucky, the interior of Louisiana generally, the interior of southeastern and the eastern portion of the panhandle of Texas, southeastern New Mexico, central Nebraska, the western portions of Kansas and Oklahoma, extreme southeastern Colorado, south-central and western Arizona, and California, except along the coast north of San Francisco and the extreme southwestern part.

Maximum temperatures of 80°, or higher, occurred, except in New England, the northern portion of the Middle Atlantic States, upper Lake region, except about southern Lake Michigan, Wisconsin generally, Minnesota, eastern South

Dakota, North Dakota, and portions of the slope and Plateau regions.

Freezing temperatures were reported from all States, except Florida, the isotherm of minimum temperature of 32°, extending to eastern and southern New Jersey, central Maryland, the extreme eastern portions of Virginia and the Carolinas, the central portions of Georgia and Alabama, extreme southern and southwestern Mississippi, western Arkansas, south-central Missouri, northeastern Oklahoma, south-central Kansas, western Texas, southwestern Arizona, extreme eastern California, and the western portions of Oregon and Washington.

The distribution of maximum, minimum, and average surface temperatures is graphically shown by the lines on Chart VI.

The average temperatures for the several geographic districts and the departures from the normal values are shown in the following table:

Average temperatures and departures from normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
		°	°	°	°
New England	8	51.5	+ 1.3	+ 6.2	+ 0.6
Middle Atlantic	12	57.1	+ 1.2	+ 8.7	+ 0.9
South Atlantic	10	62.8	— 0.2	+ 3.7	+ 0.4
Florida Peninsula*	8	72.3	— 0.7	+ 5.1	+ 0.5
East Gulf	9	65.8	0.0	— 7.7	— 0.8
West Gulf	7	66.3	— 0.8	—11.8	— 1.2
Ohio Valley and Tennessee	11	57.9	+ 0.9	+ 4.9	+ 0.5
Lower Lake	8	53.4	+ 2.0	+10.9	+ 1.1
Upper Lake	10	49.6	+ 2.5	+13.1	+ 1.3
North Dakota*	8	47.6	+ 4.2	+ 1.3	+ 0.1
Upper Mississippi Valley	11	54.6	+ 1.9	+ 5.9	+ 0.6
Missouri Valley	11	55.3	+ 2.7	+ 2.0	+ 0.2
Northern Slope	7	50.1	+ 4.1	+ 0.2	0.0
Middle Slope	6	56.8	+ 1.4	— 5.2	— 0.5
Southern Slope*	6	61.7	— 0.1	—10.5	— 1.0
Southern Plateau*	13	58.6	+ 0.5	—12.7	— 1.3
Middle Plateau*	8	50.9	+ 2.4	—21.6	— 2.2
Northern Plateau*	12	50.1	+ 2.1	+ 2.2	+ 0.2
North Pacific	7	53.1	+ 1.8	— 1.8	— 0.2
Middle Pacific	5	61.6	+ 3.4	— 4.7	— 0.5
South Pacific	4	65.3	+ 1.8	— 3.3	— 0.3

*Regular Weather Bureau and selected voluntary stations.

In Canada.—Prof. R. F. Stupart says:

The temperature was above the average over the Dominion, except in British Columbia and in the extreme eastern portions of the Maritime Provinces. The positive departures were, as a rule, pronounced, especially in Manitoba and the Northwest Territories, where they ranged from 4° to 7°; also in the Peninsula of Ontario, where in many localities they were from 3° to 4°. The negative departures did not exceed 2° in British Columbia, and only 1° in the Maritime Provinces.

PRECIPITATION.

The distribution of total monthly precipitation is shown on Chart III.

The precipitation was normal in North Dakota and the upper Mississippi Valley; slightly above in the Missouri Valley and middle slope region; decidedly above in the Middle Atlantic States, and below normal in the remaining geographic districts, the deficiency being marked in the north and middle Pacific and southern slope regions, and in the Florida Peninsula.

Over Florida generally the deficiency in rainfall amounted to over 2 inches, and over the east-central coast it amounted to nearly 8.0 inches. Deficiencies of 2.0 inches, or more, also occurred over southwestern Tennessee and the extreme northwestern portion of Washington. Excesses of + 1.5 inches to + 3.6 inches are reported from southwestern Missouri, eastern Kansas, New Jersey, Delaware, and the eastern parts of Virginia, Maryland, Pennsylvania, and New York. In eastern New Jersey and southeastern New York the excess ranged from + 8.0 to + 8.8 inches.

Precipitation amounting to more than 6.00 inches occurred along the coasts of northwestern Oregon and southwestern Washington; also in the eastern portions of New York, and Pennsylvania, in New Jersey, Delaware, the southern part of the eastern shore of Maryland, and extreme southeastern Virginia.

Snow fell in measurable amounts in the Rocky Mountain regions north of New Mexico, and in portions of the following districts: the Dakotas, Minnesota, Lake region, New England, and the northern portion of the Middle Atlantic States.

HAIL.

The following are the dates on which hail fell in the respective States:

Arizona, 1, 2. Arkansas, 31. California, 10. Colorado, 11, 30. Idaho, 4, 6, 28. Illinois, 3, 6, 7, 15, 23. Indiana, 17, 18, 23. Indian Territory, 30. Iowa, 2, 3, 4, 5, 6, 7, 12. Kansas, 1, 2, 6, 7, 12, 13, 14, 15, 30, 31. Louisiana, 13, 15. Maine, 26. Maryland, 2, 26. Michigan, 8, 10, 17, 26. Minnesota, 3, 4, 11, 30. Missouri, 4, 6, 7. Montana, 1, 3, 6. Nebraska, 2, 3, 5, 6. Nevada, 1. New Hampshire, 5, 27, 29. New York, 17, 18, 22, 27. North Carolina, 24, 25. North Dakota, 2. Ohio, 4, 7, 22, 23. Oklahoma, 4, 30, 31. Pennsylvania, 17, 23, 26. South Dakota, 3, 11. Texas, 4, 15, 31. Utah, 1, 2, 3, 29. Washington, 28. Wisconsin, 3, 17, 30. Wyoming, 2, 5, 6, 29.

SLEET.

The following are the dates on which sleet fell in the respective States:

Colorado, 3, 30, 31. Kansas, 31. Maine, 26. Massachusetts, 23, 26. Michigan, 16, 17, 18, 23, 25. Minnesota, 3, 4, 16, 22. Montana, 1, 3, 6, 11. Nevada, 1. New York, 18, 24, 26, 27, 28. North Carolina, 23, 25. North Dakota, 1. Ohio, 23. Utah, 2, 29. Virginia, 24, 25. Wisconsin, 17. Wyoming, 6.

Average precipitation and departure from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		Inches.		*Inches.*	*Inches.*
New England	8	3.08	79	—0.8	—2.0
Middle Atlantic	12	5.74	177	+2.5	+2.5
South Atlantic	10	2.86	76	—0.9	—1.7
Florida Peninsula*	8	1.82	38	—3.0	+3.0
East Gulf	9	1.88	70	—0.8	—3.7
West Gulf	7	2.70	96	—0.1	0.0
Ohio Valley and Tennessee	11	2.17	84	—0.4	—5.4
Lower Lake	8	2.90	94	—0.2	+2.0
Upper Lake	10	2.35	80	—0.6	+0.8
North Dakota*	8	1.02	100	0.0	—1.4
Upper Mississippi Valley	11	2.39	100	0.0	+1.6
Missouri Valley	11	2.16	110	+0.2	+4.1
Northern Slope	7	0.35	41	—0.5	+0.6
Middle Slope	6	2.47	157	+0.9	+1.0
Southern Slope*	6	1.01	50	—1.0	—2.2
Southern Plateau*	13	0.37	48	—0.4	+0.5
Middle Plateau*	8	0.52	57	—0.4	—0.6
Northern Plateau*	12	0.83	67	—0.4	—3.4
North Pacific	7	2.92	65	—1.6	—8.2
Middle Pacific	5	0.70	41	—1.0	—5.4
South Pacific	4	0.02	3	—0.6	—0.2

*Regular Weather Bureau and selected voluntary stations.

In Canada.—Professor Stupart says:

The rainfall was below the average in nearly all portions of Canada, except locally, these exceptions being Ontario, south and east of the Georgian Bay district to the boundary, Montreal and its vicinity, Nova Scotia, and a few isolated places in Manitoba, Saskatchewan and Alberta. The most general marked deficiency, amounting to an inch and over, occurred in the Province of Quebec; elsewhere the minus departures varied from one to nine-tenths of an inch.

SUNSHINE AND CLOUDINESS.

The cloudiness was normal in the South Atlantic States; above normal in New England and the Middle Atlantic and west Gulf States, and the middle and southern slopes and middle Pacific regions, and below normal in the remaining geographic districts.